We Claim:

1. A fusion protein comprising a Receptor for Advanced Glycation End Product Ligand Binding Element (RAGE-LBE) and an immunoglobulin element.

2. The fusion protein of claim 1, wherein said RAGE-LBE comprises extracellular portions of RAGE.

3. The fusion protein of claim 1, wherein said RAGE-LBE comprises amino acid residues 1 through 344 of the amino acid sequence set forth in Figure 7.

4. The fusion protein of claim 1, wherein said RAGE-LBE comprises amino acid residues 1 through 330 of the amino acid sequence set forth in Figure 7.

5. The fusion protein of claim 1, wherein said RAGE-LBE comprises amino acid residues 1 through 321 of the amino acid sequence set forth in Figure 7.

6. The fusion protein of claim 1, wherein said RAGE-LBE comprises amino acid residues 1 through 230 of the amino acid sequence set forth in Figure 7.

7. The fusion protein of claim 1, wherein said RAGE-LBE comprises amino acid residues 1 through 118 of the amino acid sequence set forth in Figure 7.

8. The fusion protein of claim 1, wherein said RAGE-LBE comprises Ig1, Ig2, and Ig3 domains.

9. The fusion protein of claim 1, wherein said RAGE-LBE comprises Ig1 and Ig2 domains.

10. The fusion protein of claim 1, wherein said RAGE-LBE comprises the Ig1 domain.

11. The fusion protein of claim 1, wherein said RAGE-LBE comprises one or more point mutations wherein said point mutations increase the binding

affinity of said RAGE-LBE for a Receptor for Advanced Glycation End Product Binding Partner (RAGE-BP).

12. The fusion protein of claim 1, wherein said immunoglobulin element comprises an immunoglobulin heavy chain.

13. The fusion protein of claim 1, wherein said immunoglobulin element comprises an Fc domain.

14. The fusion protein of claim 12, wherein said immunoglobulin heavy chain is selected from the group consisting of an IgM, IgD, IgE, and IgA heavy chains.

15. The fusion protein of claim 12, wherein said immunoglobulin heavy chain is selected from the group consisting of an IgG1, IgG2β, IgG2α, and IgG3 heavy chains.

16. The fusion protein of claim 1, wherein said immunoglobulin element comprises the CH1 and Fc domains.

17. The fusion protein of claim 1, wherein said immunoglobulin element comprises a CH1 domain of a first immunoglobulin class and a CH1 domain of a second immunoglobulin class, wherein the first and second immunoglobulin classes are not the same.

18. The fusion protein of claim 1, further comprising a dimerizing polypeptide.

19. A composition comprising the fusion protein of any one of claims 1 to 18 and a pharmaceutically acceptable carrier.

20. A fusion protein comprising a RAGE-LBE and a second domain selected from the group consisting of a dimerizing polypeptide, a purification polypeptide, a stabilizing polypeptide, and a targeting polypeptide.

21. The fusion protein of claim 20, wherein said dimerizing polypeptide comprises an amphiphilic polypeptide.

22. The fusion protein of claim 21, wherein said amphiphilic polypeptide comprises up to 50 amino acids.

23. The fusion protein of claim 22, wherein said amphiphilic polypeptide comprises up to 30 amino acids.

24. The fusion protein of claim 22 wherein said amphiphilic polypeptide comprises up to 20 amino acids.

25. The fusion protein of claim 22, wherein said amphiphilic polypeptide comprises up to 10 amino acids.

26. The fusion protein of claim 20, wherein said dimerizing polypeptide comprises a peptide helix bundle.

27. The fusion protein of claim 20, wherein said dimerizing polypeptide comprises a leucine zipper.

28. The fusion protein of claim 27, wherein said leucine zipper is a jun zipper.

29. The fusion protein of claim 27, wherein said leucine zipper is a fos zipper.

30. The fusion protein of claim 20, wherein said dimerizing polypeptide comprises a polypeptide having positively or negatively charged residues wherein said polypeptide binds to another peptide bearing opposite charges.

31. A composition comprising the fusion protein of any one of claims 20 to 30 and a pharmaceutically acceptable carrier.

32. A fusion protein comprising an amino acid sequence that is at least 90% identical to the amino acid sequence of Figure 3A.

33. A nucleic acid sequence encoding a polypeptide fusion comprising a RAGE-LBE and an immunoglobulin element.

34. A nucleic acid sequence encoding a polypeptide at least 90% identical to the amino acid sequence set forth in Figure 3A.

35. The nucleic acid of claim 33, wherein said RAGE-LBE is fused to said immunoglobulin element through the C- or N-terminal amino or carboxy groups.

36. An expression vector comprising a nucleic acid of claim 33.

37. The expression vector of claim 36, which replicates in at least one of a prokaryotic cell and a eukaryotic cell.

38. A host cell transfected with the expression vector of claim 37.

39. A method of producing a RAGE-LBE-Immunoglobulin fusion protein comprising culturing the cell of claim 38 in a cell culture medium suitable for expression of the fusion protein.

40. The method of claim 39, further comprising a purification procedure to increase the purity of said fusion protein.

41. An isolated antibody, or fragment thereof, specifically immunoreactive with an epitope of the amino acid sequence as set forth in Figure 3A.

42. A protein complex comprising one or more fusion proteins, wherein said fusion proteins are selected from the group consisting of:
a) a fusion protein comprising a RAGE-LBE and an immunoglobulin element; and
b) a fusion protein comprising a RAGE-LBE and a second domain selected from the group consisting of a dimerizing domain, a stabilizing domain, a purification domain, and a targeting domain.

43. A pharmaceutical composition comprising a RAGE-LBE and a TNF-α inhibitor.

44. A pharmaceutical composition comprising a fusion protein and a TNF-α inhibitor, wherein said fusion protein comprises a RAGE-LBE and an immunoglobulin element.

45. A method of identifying a compound which inhibits interaction of a RAGE-BP polypeptide selected from the group consisting of S100 and amphoterin, with a receptor polypeptide selected from the group consisting of RAGE, RAGE-LBE, and RAGE-LBE-Immunoglobulin fusion, comprising:
a) forming a reaction mixture including: (i) a RAGE-BP polypeptide of S100 or amphoterin; (ii) a receptor polypeptide of RAGE, RAGE-LBE or RAGE-LBE- Immunoglobulin fusion; and (iii) a test compound, under conditions where, in the absence of the test compound, the RAGE-BP polypeptide and the receptor polypeptide interact; and
b) detecting interaction of the RAGE-BP polypeptide with the receptor polypeptide,
wherein a decrease in the interaction of the RAGE-BP polypeptide and the receptor polypeptide in the presence of the test compound, relative to the level of interaction in the absence of the test compound, indicates an inhibitory activity for the test compound.

46. The method of claim 45, wherein the RAGE-BP is S100.

47. The method of claim 45, wherein the RAGE-BP is amphoterin.

48. A method of identifying a compound which inhibits the RAGE signaling activity induced by a RAGE-BP polypeptide selected from the group consisting of S100 and amphoterin, comprising:
a) contacting a cell with a RAGE-BP polypeptide of S100 or amphoterin;

b) contacting the cell with a test compound, under conditions where, in the absence of the test compound, the signaling activity of the RAGE occurs normally; and

c) detecting the signaling activity of the RAGE induced by the RAGE-BP, wherein a decrease in the signaling activity of the RAGE induced by the RAGE-BP in the presence of the test compound, relative to the level of signaling activity in the absence of the test compound, indicates an inhibitory activity for the test compound.

49. The method of claim 48, wherein the RAGE-BP is S100.

50. The method of claim 48, wherein the RAGE-BP is amphoterin.

51. The method of claim 48, wherein the signaling activity is activating NF-kB transcriptional activity.

52. The method of claim 48, wherein the signaling activity is activating mitogen-activated protein kinase (MAPK) activity.

53. A method of inhibiting the interaction between Receptor for Advanced Glycation End Product (RAGE) and a RAGE binding partner (RAGE-BP) comprising administering a fusion protein comprising RAGE-LBE and an immunoglobulin.

54. A method of inhibiting the interaction between Receptor for Advanced Glycation End Product (RAGE) and a RAGE binding partner (RAGE-BP) comprising administering the antibody of claim 41.

55. A method of inhibiting the interaction between Receptor for Advanced Glycation End Product (RAGE) and a RAGE binding partner (RAGE-BP) comprising administering a compound identified by the method of claim 45 or 48.

56. A method of decreasing the activity of endogenous RAGE comprising administering a fusion protein comprising RAGE-LBE and an immunoglobulin.

57. A method of decreasing the activity of endogenous RAGE comprising administering the antibody of claim 41.

58. A method of decreasing the activity of endogenous RAGE comprising administering a compound identified by the method of claim 45 or 48.

59. A method of treating a RAGE-associated disorder comprising administering a fusion protein comprising RAGE-LBE and an immunoglobulin.

60. The method of claim 59, wherein the fusion protein comprising RAGE-LBE and an immunoglobulin is administered in combination with one or more of an agent useful in the treatment of one or more of the conditions selected from the group consisting of: amyloidoses, cancers, arthritis, Crohn's disease, chronic inflammatory diseases, acute inflammatory diseases, cardiovascular diseases, diabetes, complications of diabetes, prion-related disorders, vasculitis, nephropathies, retinopathies, and neuropathies.

61. A method of treating a RAGE-associated disorder comprising administering the antibody of claim 41.

62. The method of claim 61, wherein said antibody is administered in combination with one or more of an agent useful in the treatment of one or more of the conditions selected from the group consisting of: amyloidoses, cancers, arthritis, Crohn's disease, chronic inflammatory diseases, acute inflammatory diseases, cardiovascular diseases, diabetes, complications of diabetes, prion-related disorders, vasculitis, nephropathies, retinopathies, and neuropathies.

63. A method of treating a RAGE-associated disorder comprising administering a compound identified by the method of claim 45 or 48.

64. The method of claim 63, wherein said compound is administered in combination with one or more of an agent useful in the treatment of one or more of the conditions selected from the group consisting of: amyloidoses, cancers, arthritis, Crohn's disease, chronic inflammatory diseases, acute inflammatory diseases, cardiovascular diseases, diabetes, complications of diabetes, prion-related disorders, vasculitis, nephropathies, retinopathies, and neuropathies.

65. The method of any one of claims 60, 62, and 64, wherein the agent is selected from the group consisting of: anti-inflammatory agents, antioxidants, β-blockers, antiplatelet agents, ACE inhibitors, lipid-lowering agents, anti-angiogenic agents, and chemotherapeutics.

66. The method of any one of claims 60, 62, and 64, wherein the agent is methotrexate.

67. The method of any one of claims 60, 62, and 64, wherein the acute inflammatory disease is sepsis.

68. The method of any one of claims 60, 62, and 64, wherein the cardiovascular disease is restenosis.

69. The method of any one of claims 53, 56, and 59, wherein said RAGE-LBE comprises extracellular portions of RAGE.

70. A method of treating a RAGE-associated disorder comprising administering a composition comprising TNF-α inhibitor and at least one RAGE-LBE or a fusion protein comprising RAGE-LBE and an immunoglobulin.

71. A method of treating a RAGE-associated disorder comprising administering a composition comprising at least a fusion protein comprising RAGE-LBE and an immunoglobulin.

72. The method of any of claims 59-64 and 70-71, wherein said RAGE-associated disorder is selected from the group consisting of amyloidoses, cancers, arthritis, Crohn's disease, chronic inflammatory diseases, acute inflammatory diseases, cardiovascular diseases, diabetes, complications of diabetes, prion-related disorders, vasculitis, nephropathies, retinopathies, and neuropathies.

73. The method of claim 72, wherein the RAGE-associated disorder is Alzheimer's disease.

74. The method of claim 72, wherein the chronic inflammatory disease is rheumatoid arthritis.

75. The method of claim 72, wherein the chronic inflammatory disease is osteoarthritis.

76. The method of claim 72, wherein the chronic inflammatory disease is irritable bowel disease.

77. The method of claim 72, wherein the chronic inflammatory disease is multiple sclerosis.

78. The method of claim 72, wherein the chronic inflammatory disease is psoriasis.

79. The method of claim 72, wherein the chronic inflammatory disease is lupus or any other autoimmune disease.

80. The method of claim 72, wherein the acute inflammatory disease is sepsis.

81. The method of claim 72, wherein the cardiovascular disease is atherosclerosis.

82. The method of claim 72, wherein the cardiovascular disease is restenosis.

83. The method of any one of claims 46 or 49 wherein S100 is S100B.

84. The method of any one of claims 46 or 49 wherein S100 is S100a12.